

REMARKS

In response to the Office Action mailed November 13, 2008, the new Assignee of this application (Nuance Communications Inc., referred to herein as "Assignee") requests reconsideration. The present application is currently under appeal, due to a notice of appeal filed February 13, 2009. However, Assignee is hereby re-opening prosecution of the application with the Request for Continued Examination (RCE) filed with this amendment.

Claims 1-16 were pending. Claims 1-14 are now amended, and new claim 17 is added. No claims are cancelled. Therefore, claims 1-17 are pending, with claims 1, 7, and 13 being independent. No new matter has been added.

I. Claim Rejections Under 35 U.S.C. § 101

Claims 7-12 stand rejected under 35 U.S.C. § 101 as purportedly being directed to non-statutory subject matter. Assignee requests reconsideration in view of the claim amendments made herein.

Claims 7-12 have been amended to recite a "computer-readable storage medium." Support for the amendments can be found, for example, in the original claims 7-12 filed with the application, which recited "a machine readable storage." MPEP § 2106.01 makes clear that a computer-readable storage medium with instructions is statutory ("When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized."). In addition, claims 7-12, as now amended, are directed to a computer-readable *storage* medium, which does not encompass carrier waves, since carrier waves are not a storage medium.

In view of the foregoing, it should be appreciated that claims 7-12 are directed to statutory subject matter, and therefore Assignee requests that the rejections of claims 7-12 under 35 U.S.C. § 101 be withdrawn.

II. Claim Rejections Under 35 U.S.C. § 103

Independent claims 1 and 7 stand rejected under 35 U.S.C. § 103(a) as purportedly being unpatentable over U.S. Patent No. 7,117,153 ("Mahajan") in view of U.S. Patent Publication No. 2002/0188,451 ("Guerra"). Independent claim 13 stands rejected under 35 U.S.C. § 103(a) as purportedly being unpatentable over Mahajan in view of Guerra and further in view of U.S. Patent No. 6,275,797 ("Randic"). Assignee requests reconsideration in view of the claim amendments included herein and the following remarks.

A. Mahajan

Mahajan relates to modeling the performance of speech recognition systems (col. 1, ll. 7-9). Mahajan asserts that speech recognition systems operate by converting an acoustic signal into a sequence of words using an acoustic model and a language model (col. 2, ll. 10-12). The acoustic model converts features of the acoustic signal into potential sequences of speech units, with the speech units being words or subsets of words (col. 1, ll. 12-14). The language model provides probability distributions for various sequences of words that can be formed from the sequences identified by the acoustic model (col. 1, ll. 14-17).

As shown in FIG. 2, the method begins by training an acoustic model (col. 4, ll. 58-60). Once the acoustic model is trained, training data (i.e., an acoustic signal used to train the model) is decoded based on the acoustic model to generate a predicted speech unit sequence (col. 5, ll. 11-13). The predicted speech unit sequence is then aligned to the actual sequence, which is known because the training data is known (step 204). Subsequently, a confusion model can be constructed from the predicted sequence and the actual sequence (step 206). The confusion model constructed at 206 can be used to model the performance of the acoustic model of the speech recognition system without the need for an acoustic signal, but rather using a text signal (col. 7, ll. 49-52).

At step 208, test text (rather than an acoustic signal) is then decoded using the confusion model from step 206, and probabilities that a predicted speech unit sequence is the accurate speech unit sequence (for the test text) are generated for each speech unit sequence predicted by the confusion model. At step 210, errors between the predicted speech unit sequences and the test text

are then identified. At step 212 a word error rate score is generated for the test text of step 208 (col. 9, ll. 37-38).

Thus, Mahajan teaches a method for assessing whether a speech recognition system can accurately recognize an input signal. Mahajan does not teach a method of determining how distinguishable different grammars are from each other.

B. Guerra

Guerra relates to dynamically configurable voice portals (see Title). A user inputs utterances to a speech recognition portal (see Abstract). The utterances are interpreted using a speech recognition process (Abstract). Then, one or more aspects of the speech recognition process are dynamically configured (Abstract). There is no teaching of assessing how distinguishable grammars associated with the portal are from each other.

C. Randic

Randic relates to testing the quality of a voice path in a communication network using speech recognition (see Abstract). Voice signals are transmitted over a voice path from a sending computer to a receiving computer (Abstract). The receiving computer receives the voice signals, which are then interpreted by a speech recognition engine (Abstract). The speech patterns in the voice signal identified by the speech recognition engine are then compared to the reference speech patterns of the voice signal (Abstract). A determination of the quality of the voice path over which the voice signal was transmitted can then be determined by comparing the received speech patterns to the reference speech patterns (Abstract).

D. Claim 1 is Not Obvious in View of Mahajan and Guerra

Claim 1 is not obvious in view of Mahajan and Guerra, because even if one of skill in the art would have had reason to modify Mahajan as proposed in the Office Action (which Assignee does not concede), such modification would not have resulted in the claimed method. For example, claim 1 recites:

A method of evaluating grammars associated with a voice portal, said method comprising:

generating a test input for a current grammar of the voice portal, the test input including a test pattern;

providing the test input to the voice portal;

analyzing the test pattern with respect to a set of active grammars corresponding to the current grammar with a speech recognition engine in the voice portal, the current grammar being one grammar of the set of active grammars; and

deriving a measure of how distinguishable the current grammar is from other grammars of the set of active grammars based at least in part on the analysis of the test pattern. (emphasis added).

The proposed modification of Mahajan would have failed to result in a method meeting at least the above-highlighted limitation of claim 1.

As described above in II(A), Mahajan discloses a method for determining whether a voice recognition system can accurately recognize an input to a speech recognition system. The method therefore provides an assessment of whether the word recognized by the system accurately reflects the word input to the system. The Office Action itself recognizes as much. In rejecting claim 1, the Office Action asserts that Mahajan teaches the derivation of a measure of quality of recognition in that Mahajan teaches the use of an error function “that indicates the degree to which the predicted sequence of speech units differs *from the actual sequence* of speech units...” (see p. 4 of Office Action) (emphasis added).

Irrespective of whether the Office Action appropriately applied the teachings of Mahajan to previously pending claim 1 (which Assignee does not concede), there is no teaching in Mahajan of deriving a measure of how distinguishable two grammars are from each other, let alone of “deriving a measure of how distinguishable the current grammar is from other grammars of the set of active grammars,” as required by claim 1. In addition, Guerra fails to remedy the deficiency of Mahajan in teaching the above-highlighted limitation of claim 1.

Thus, modifying Mahajan as proposed in the Office Action would not have resulted in a method meeting all the limitations of claim 1, so that claim 1 is not obvious over Mahajan in view of Guerra. Assignee therefore requests that the rejection of claim 1 be withdrawn.

Support for the amendments to claim 1 can be found in the application as originally filed, for example at least in paragraphs [0027]-[0030] of the specification. Therefore, no new matter has been added.

Claims 2-6 depend from claim 1 and are patentable over the art of record based at least on their dependencies. Therefore, Assignee requests that the rejections of claims 2-6 be withdrawn.

E. Claim 7 is Not Obvious in View of Mahajan and Guerra

Claim 7 is not obvious in view of Mahajan and Guerra, because even if one of skill in the art would have had reason to modify Mahajan as proposed in the Office Action (which Assignee does not concede), such modification would not have resulted in a computer-readable storage medium meeting all of the limitations of the claim. For example, claim 7 recites:

A computer-readable storage medium encoded with instructions which, when executed by a computer, cause the computer to perform a method of evaluating grammars associated with a voice portal, the method comprising:
generating a test input for a current grammar of the voice portal, the test input including a test pattern;
providing the test input to the voice portal;
analyzing the test pattern with respect to a set of active grammars corresponding to the current grammar with a speech recognition engine in the voice portal, the current grammar being one grammar of the set of active grammars; and
deriving a measure of how distinguishable the current grammar is from other grammars of the set of active grammars based at least in part on the analysis of the test pattern. (emphasis added).

From the foregoing discussion in sections II(A), (B), and (D), it should be appreciated that the proposed modification of Mahajan would not have met at least the above-highlighted limitation of claim 7. Thus, Assignee requests that the rejection of claim 7 be withdrawn.

Support for the amendments to claim 7 can be found in the application as originally filed, for example at least in paragraphs [0027]-[0030] of the specification. Therefore, no new matter has been added.

Claims 8-12 depend from claim 7 and are patentable over the art of record based at least on their dependencies. Therefore, Assignee requests that the rejections of claims 8-12 be withdrawn.

F. Claim 13 is Not Obvious in View of Mahajan, Guerra, Randic

Claim 13 is not obvious in view of the proposed modification of Mahajan, because the proposed modification would not have resulted in a system meeting all of the limitations of claim 13. For example, claim 13 recites:

A system for evaluating grammars of a voice portal having a speech recognition engine, comprising:
a test pattern generator for generating a test input for each current grammar of a set of current grammars of the voice portal, the test input including a test pattern;
a text-to-speech engine for entering each test pattern into the voice portal;
a results collector for analyzing each test pattern entered into the voice portal with the speech recognition engine against a set of active grammars corresponding to the current grammar for a respective test pattern, the current grammar being one grammar of the set of active grammars; and
a results analyzer for deriving a set of statistics indicative of how distinguishable each current grammar of the set of current grammars is from other grammars of the corresponding set of active grammars (emphasis added).

It should be appreciated from the above discussion in sections II(A)-(E) that none of Mahajan, Guerra, and Randic teach the derivation of statistics indicative of how distinguishable grammars are from each other. The proposed modification of Mahajan (see pgs. 17-18 of Office Action) would not have resulted in a system comprising "a results analyzer for deriving a set of statistics indicative of how distinguishable each current grammar of the set of current grammars is from other grammars of the corresponding set of active grammars," as required by claim 13. For at least this reason, claim 13 is patentable over the proposed modification of Mahajan, and therefore Assignee requests that the rejection of claim 13 be withdrawn.

Support for the amendments to claim 13 can be found in the application as originally filed, for example at least in paragraphs [0027]-[0030] of the specification. Therefore, no new matter has been added.

Claims 14-17 depend from claim 13 and are patentable over the art of record based at least on their dependencies. Therefore, Assignee requests that the rejections of claims 14-16 be withdrawn.

III. Response to "Well Known" Assertions

In rejecting dependent claims 11 and 15, the Office Action asserts that "...it is well known in the art that TTS engines can be configured to allow for the generation of multiple voice types, although the claim language suggest that just one voice could be used." (see pgs. 16, 19 of Office Action). It is unclear what is meant by the phrase "voice types," and therefore Assignee does not concede that the allegedly "well known" assertions are in fact well known. Assignee respectfully requests that the Examiner provide references supporting this assertion if the assertion is to be maintained.

IV. Additional Comments on Dependent Claims

Since each of the dependent claims depends from a base claim that is believed to be in condition for allowance, Assignee believes it is unnecessary at this time to argue the allowability of each of the dependent claims individually. Assignee does not, however, necessarily concur with the interpretation of any dependent claim as set forth in the Office Action, nor does Assignee concur that the basis for the rejection of any dependent claim is proper. Therefore, Assignee reserves the right to specifically address the patentability of the dependent claims in the future, if deemed necessary.

V. New Claim

New claim 17 depends from independent claim 13 and recites a limitation previously found in independent claim 13. Thus, no new matter has been added. Claim 17 is patentable over the art of record based at least on its dependency.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Assignee hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, the Director is hereby authorized to charge any deficiency or credit any overpayment in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 23/2825, under Docket No. N0484.70571US00.

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Respectfully submitted,

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